DOCUMENT RESUME

ED 237 050 HE 016 831

AUTHOR Miller, Harry G.; Clark, Elmer J.
TITLE Planning and Managing Technology Programs: A Challenge to Higher Education.
PUB DATE 19 Jul 83
NOTE 19p.; Paper presented at the Annual Meeting of the Society for College and University Planning (18th, New Orleans, LA, July 19, 1983).
PUB TYPE Viewpoints (120) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Access to Education; Accreditation (Institutions); College Planning; College Programs; *College Role; *Economic Development; Educational Opportunities; *Education Work Relationship; Government School Relationship; Higher Education; *Labor Force Development; *School Business Relationship; *Technological Advancement

ABSTRACT

The increasing links between technology and economic development have implications for higher education. Access to and equality of opportunity are frequently-stated missions of higher education that are perceived to be in the best interest of society's future vitality. As technological advancements increase and higher education attempts to fulfill social and economic needs, colleges and universities are being asked to alter their programmatic objectives and offerings at a pace that does not allow for leisurely adjustment. A central part of higher education's development is the forming of more cooperative and efficient relationships with other educational forms and levels, professional associations, the private sector, and local and state governments. Therefore institutional roles are being delineated to foster coordination and linkages to address societal and cultural concerns more effectively. Accreditation in higher education is confronted with a number of major issues in adjusting to societal demands for closer relationships between occupational needs and higher education. Specialized college degrees reflect the rise of occupations that require formal instruction to meet the needs of a more technologically complex economic structure. (Author/SW)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED237050

PLANNING AND MANAGING TECHNOLOGY PROGRAMS: A CHALLENGE TO HIGHER EDUCATION

by

Harry G. Miller
Dean, School of Technical Careers
Southern Illinois University at Carbondale

and

Elmer J. Clark
Professor of Educational Leadership
Southern Illinois University at Carbondale

Presented at the 18th Annual Meeting

of the

Society for College and University Planning

New Orleans, Louisiana
July 19, 1983

HE016 831

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Harry S. Miller

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

Abstract of the article, "Planning and Managing Technology Programs: A Challenge to Higher Education," by Harry G. Miller and Elmer J. Clark

The researchers held that the application of technology to national development provides for moderization of economics for the fulfillment of human needs. They also concluded that access to and equality of opportunity are frequently-stated missions of higher education that are perceived to be in the best interest of society's future vitality. Assuming that a primary function of higher education is the interpretation and transmission of knowledges, the writers concluded that as technological advancements increase and as higher education attempts to fulfill social and economic needs, higher education is being asked to alter its programmatic objectives and offerings at a pace which does not allow for leisurely adjustment. The writers further argued that central to higher education's development is the forming of more cooperative and efficient relationships with other educational forms and levels, professional associations, the private sector, and local and state governments. Thus, institutional roles are being delineated to foster coordination and linkages to address societal and cultural concerns more effectively.

INTRODUCTION

Little debate exists concerning the fact that technological advances are changing the American labor force and, conversely, requiring changes in the type and scope of education offered by higher education. New technology means not only new machines, systems, and procedures, but also changes in skill training, working conditions, and academic and professional requirements for employment. The current emphasis on "high technology" and "industry-education" research cooperation tends to focus more on recent extraordinary technological discovery than on the need for technical training required by new technology. The relationships among economic growth, automated productivity, and formal education, especially in higher education, are assumptions made with limited substantiation.

The role of skilled personnel in economic growth has long been recognized. However, the problem of providing professional education has become increasingly difficult as the rate of technological change has accelerated. When people could expect to spend their entire careers essentially utilizing the same skills, knowledge, and attitudes, institutionalizing educational preparation was

relatively direct. A stable profession can rely on relatively specific preparation because its utility remains constant. When an occupation becomes established, a relatively stable labor market exists and the forecasting of personnel needs and instructional preparation may be done with a degree of consistency. While the demand for greater economic productivity, stimulated by technological development, has increased, the pressure placed on educational institutions to respond to the difficult task of instituting appropriate educational preparation for new careers has also increased. Economics and education are intrinsically related.

MAJOR ISSUES

The relationship between higher education and career preparation is having an increasingly ostensible impact on educational programming and planning. The purpose of this article is to examine some of the major issues impacting higher education as a result of increased technology's relationship to economic development.

Institution/Program Accreditation

Education in the United States continues to emphasize the unique concept of voluntary accreditation of institutions and programs for the purpose of self-improvement. Professional associations are a significant force in establishing academic degree programs, particularly through the accrediting process, which includes

both the accrediting of institutions and units and the certification of individuals to practice a career. Through an association's accreditation process, associations are directly involved in prescribing educational qualifications for faculty and candidates for certification, standards for educational programs, and procedures for placement of graduates. Accreditation is the process by which a professional association approves an educational institution and/or programs in terms of preparation of individuals required for professional entry and institutional capability to provide for established requirements.

The concept of accreditation is based on three distinct but interdependent functions and areas of responsibility. First, state governments are constitutionally responsible for issuing licenses or charters to educational institutions within their boundaries and for issuing individual licenses to practice a profession or occupation. State governments are, in the main, ultimately responsible for educational practices, programs, and institutions, with few exceptions such as military programs. Second, professional associations admit to membership and accredit institutions and/or academic programs. In fulfilling this enabling function, most organizations use self-study and evaluation, peer review visitation teams, and annual reports to protect institutions and/or programs against encroachments on quality by prescribing standards, criteria, policies, and guidelines. Third, the federal government provides

funds to "eligible" institutions and students on the basis of information provided by accrediting associations. The Basic Grant Program and Guaranteed Student Loan Program are examples. As a result of an accreditation process which incorporates these distinct but relative functions, institutions and/or programs are recognized as having legitimate degree-granting powers within their respective states.

Accreditation in higher education is confronted with a number of major issues in adjusting to societal demands for closer relationships between occupational needs and higher education. Some of these issues include, but are not limited to, the following:

1. Proliferation and specialization in accreditation resulting from rapidly emerging professional occupations
2. Development of multiple accreditation--more than one professional association in a field
3. Increase in federal regulation of higher education directing the form of education to be provided
4. Diverse role and character of institutions of higher education and the corresponding complexities encountered in accrediting unique institutions and programs
5. An accrediting association as a reliable authority on the quality of higher education offered

6. Autonomy of accrediting associations
7. State governments' role in determining institutional eligibility for federal funds
8. Alternatives to federal and state government regulation of higher education

New Technical Occupations

Basic structural changes in the American economy are occurring because of a variety of factors, including demographic changes in the labor force, shifts to labor-saving high-technology, international trade and investments, coordination of education with existing employment, and state and federal incentives for economic development. Shifts in economic emphasis through application of technology are transforming the American economy, and thus the workforce, at an unbalanced and accelerated rate. New and modified occupations and careers in the design, production, installation, and maintenance of technologies are being created, while generating unprecedented job obsolescence. It is recognized that unemployment will not be restored automatically with economic recovery. The growth of the economy is dependent on meeting the need for skilled personnel as well as on addressing the needs of the "hard core" unemployed.

As the economy experiences structural changes, employers are seeking a skilled labor force heretofore unavailable from traditional formal education systems.

The imbalance between employers' abilities to meet their labor needs and the present underutilized labor supply is reflective of the mismatch between skills possessed by the labor force and skills required for employment. The mismatch can be attributed to changes in technologies, geographic dispersion of jobs, and lack of appropriate education. The time lag between technological innovation and commercial application used to be 10 to 15 years and is now three to four years. New technologies require rapid changes in the production process and, consequently, new skills that necessitate a higher level of proficiency. In response to unmet employment needs, most corporations possess or are developing their own in-house educational systems.

The academic degree structure is a major feature of higher education. That structure directly impacts the occupational lives of people and the use of national and state resources. Further, degrees influence the amount of time and resources spent on formal education, job expectations and performance, opportunities for further formal education, and the programs of study offered. Specialized degrees in higher education reflect the rise of occupations which require formal instruction to meet the needs of a more technologically complex economic structure.

The role of degree-based higher education in addressing the need for a higher level of technically-trained personnel, to serve society in varied occupations, is

emerging quickly as an important factor in job placement. In coordinating higher education with relevant employment needs of society, some of the major issues confronting educators and economic planners are as follows:

1. Impact of education on labor productivity
2. Mission of public and private higher education
3. Relationship of liberal arts preparation to preparation for direct employment opportunities
4. Capability of technology through education to utilize surplus labor
5. Adaptation of higher education to local labor supply conditions
6. Higher education's role in job preparation appropriate for tomorrow's technology
7. Higher education's capability to provide private sector, occupation-specific education
8. Degrees, courses, grades, and licensure as measures of competence
9. Relationship of professional associations to corporate in-house education

Higher Education in Economic Development

The role of state-supported higher education in economic development and the means by which universities can contribute more effectively to economic development are

major issues in many states as universities adjust their capabilities to meet the demands of economic change. In simplest terms, major factors in economic development are retraining and creating jobs--retraining for the currently employed and underemployed, creating jobs for the unemployed, and creating jobs for new graduates from all types of educational programs. Improving a state's economy greatly depends on higher education's preparation of people for the work force and the upgrading of skills and knowledge of the existing work force.

Typically, a state's higher education institutions represent a valuable asset, diverse in size, scope of educational programs, research expertise, forms of control, and ability to respond to the needs of the economy. Some institutions are most responsive to local needs. Others attempt to be responsive to regional or statewide needs. Still others address needs of national and even international significance. This diversity can contribute significantly to higher education's value to economic development. The way education deploys its resources will affect, as never before, productivity, the state and national economy, and the quality of life.

Academic programs play an important role in the relationship between higher education and economic development. These programs contribute to economic development in at least three ways--through graduates, faculty expertise, and the production of new knowledge by means of organized research and development activities.

Research is characteristic of public universities, with basic research playing an important role in fostering technological advances, although the importance of research often is apparent only after many years. Economic development requires finding ways to apply basic scientific knowledge to technological development more effectively. Some federal and state funds appropriated to higher education are allocated specifically for organized research activities in order to foster scientific breakthroughs.

Over the years, industry also has supported directly the funding of research in public higher education. The current emphasis by industry on high technology as a prerequisite to economic development and the willingness of higher education to assist in economic development have focused public discussion on what constitutes appropriate forms of educational partnership. Such forms have been ad hoc and diverse in nature and have frequently been based more on issues of scale rather than on overall institutional policies or goals. The relationship of public higher education to private industry and the extent of compatability between the various forms of existing relationships are current concerns in higher education.

The role and function of public higher education in economic development are a public issue no longer confined solely to university determination. Some of the

fundamentally related issues are as follows:

1. Determination of fundamental missions of public higher education and of individual institutions
2. Preservation of public higher education's role of providing for a free exchange of ideas and of fostering freedom of thought
3. State and federal governments' roles in determining the relationships between public higher education and private-sector industries
4. Public higher education's responsibilities for furthering the development of areas of science as opposed to fostering product-oriented development
5. Distinctions between basic research conducted by public higher education, federally-funded research laboratories, and private industries
6. Development of safeguards to preclude conflicts of interests
7. Means of determining patent rights which reflect the interest of institutions, scientists, and industries
8. Need for institutions of higher education to be selective in developing joint ventures with the private sector

9. Role of state-supported higher education in fostering state-oriented economic development

Proprietary Postsecondary Education

The private school industry at the postsecondary education level is a principal means of providing formal job-oriented education and is receiving increased attention as regards highly specific preparation for technical fields. This industry is a growing source of alternative educational offerings, within postsecondary education but outside the degree offerings of traditional forms of higher education. Frequently labeled as proprietary vocational schools, such educational institutions, organized for financial profit, are experiencing major student enrollment growth. Control Data, Bell and Howell, and Honeywell are examples of publicly-held corporations in the business of providing job-placement-oriented education on a national scale. Current changes in public acceptance of proprietary education are heightening interest in what proprietary schools can do and are doing.

Proprietary education education is known for specifically-designed preparation related to job placement. Students in proprietary education are able to meet the requirements for job entry in a specific occupation and in a limited period of time. Such education frequently is characterized as single-purpose, human-capital-creating preparation. Proprietary education is able to respond

quickly to changes in manpower needs of local industries and businesses, by developing the curriculum from the market place, thus enabling students to fulfill employer-defined needs.

Because student tuition comprises the major source of revenue, this form of education must be more responsible to student and labor market demands. As opposed to publicly-supported institutions, the cost of instruction and of continuous upgrading of program offerings is frequently associated with the profit incentive.

Consideration of the impact of post secondary proprietary education or other forms of higher education, and its relationship to such education, raises a number of issues related to technical education programming. Some such issues include the following:

1. Effectiveness of profit-oriented post-secondary education
2. Relationship of job requirements to certificate and degree requirements
3. Role of job-oriented education in preparing students for long range work needs
4. Accuracy of labor market forecasting
5. Society's responsibility to finance the cost of instruction for specific career occupations

6. Coordination of occupational preparation among public community colleges, proprietary schools, and public/private universities
7. Capability to supply information concerning previous and present employment experiences of students

SUMMARY

The application of technology to national development provides for moderization of economies for the fulfillment of human needs. New products, innovative processes, and novel solutions enable society to master its environment and to enhance human potential. Stable growth can be realized by achieving and maintaining an economic balance, matching workers with technology, meshing investments with resources, and meeting consumer demands with production. Application of available technology is not an end in itself. An integral part of development is the adoption and expansion of technology directed toward specific needs. Technological diffusion is primarily an educational process.

Access to and equality of opportunity are frequently-stated missions of higher education that are perceived to be in the best interest of society's future vitality. Until recently, the issue of universal access to publicly-supported higher education unfortunately has focused on the right of attendance as opposed to successful attendance. As local and state governments examine the role

and purpose of higher education, such institutions are being forced to refine their programming mission rather than to pursue unrestricted program expansion. Refined missions and goals have emerged in response to changing social and economic conditions, as society has selected and pursued current values. A recent significant change has been the integration of state-economicdevelopment strategies into educational policies.

A primary function of higher education is the interpretation and transmission of knowledge. As technological advancements increase and as higher education attempts to fulfill social and economic needs, higher education is being asked to alter its programmatic objectives and offerings at a pace which does not allow for leisurely adjustment. Higher education's ability to adapt rapidly to the dynamics of the marketplace and to fundamental shifts in economic structure are major challenges and opportunities of the 1980's. Higher education is no longer allowed unrestricted latitude to determine its missions and functions, in isolation from its social and economic context. Central to higher education's development is the forming of more cooperative and efficient relationships with other educational forms and levels, professional associations, the private sector, and local and state governments. Institutional roles are being delineated to foster coordination and linkages to address societal and cultural concerns more effectively.

BIBLIOGRAPHY

Choate, Pat. Retooling the American Work Force: Toward a National Training Strategy. Washington, D.C.: Northeast-Midwest Institute, July, 1982.

Finkin, Matthew W. Federal Reliance on Educational Accreditation: The Scope of Administrative Discretion. Washington, D.C.: The Council on Postsecondary Accreditation, 1978.

Harcleroad, Fred F. Accreditation: History, Process, and Problems. Washington, D.C.: Clearinghouse on Higher Education, 1980.

Harris, Norman C. and Grede, John F. Career Education in Colleges. San Francisco: Jossey-Bass Publishers, 1977.

Jacobsen, Robert L. "The Great Accreditation Debate: What Role for the Government?" The Chronical of Higher Education, June 16, 1980, pp. 1, 10.

Kaplin, William A. Respective Roles of Federal Government, State Governments, and Private Accrediting Agencies in the Governance of Postsecondary Education. Washington, D. C.: The Council on Postsecondary Accreditation, 1975.

Kells, R. R. and Parrish, R. M. Multiple Accreditation Relationships of Postsecondary Institutions in the United States. Washington, D.C.: The Council on Postsecondary Education, 1979.

Orlans, Harold. "The End of a Monopoly." Change 12 (February 1980): 32-36.

Paul, Krishan K. and Carlos, Ellen A. Vocational Educators' Handbook for Economic Development. Arlington: American Vocational Association, 1981.

Trivett, David A. Proprietary Schools and Postsecondary Education. Washington, kD.C.: Clearinghouse on Higher Education, 1974.

"University/Industry Cooperation in Biotechnology." Hearings before the Subcommittee on Investigations and Oversight and the Subcommittee on Science, Research and Technology of the Committee on Science and Technology. U.S. House of Representatives, Ninety-Seventh Congress, Second Session, No. 138, June 16, 17, 1982.

Vermilye, Dyckman W. (Ed.) Relating Work and Education. San Francisco: Jossey-Bass Publishers, 1977.

Young, Kenneth E. "New Pressures on Accreditation." Journal of Higher Education 50 (March-April 1979): 132-44.